Most Common Service Questions for the Icom IC-765

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Symptom:	Unit will not transmit or receive on all bands. Very low noise from speaker. Display and controls all seem to work properly.
Probable Cause:	PLL unlock. Usually this is caused by cracked/overheated solder on the PLL unit, particularly in the LPL VCXO. Check DC voltages at R6 and R201 to verify the PLL unlock condition.
Cure:	Resolder cracked joints on PLL unit. Pay particular attention to the joints around the regulators and inside beneath the LPL VCO shield.

Symptom:	Dead spots in the bottom 250 kHz (or so) range of each band when radio is cold. Dead spots may eventually get smaller then disappear as radio warms up.
Probable Cause:	DDS LPL trimmer capacitor C226 on PLL unit has drifted out of adjustment.
Cure:	Readjust C226 to specs. If C226 is difficult to adjust or won't hold its adjustment, it has probably become unstable and should be replaced. When replacing C226, inspect solder in LPL VCO section and remove excessive wax from around replacement capacitor to prevent contamination of the new part.
Remarks:	On older units, there is no address hole in the LPL shield cover to facilitate adjustment of C226. On these units, you will have to unsolder and remove the shield cover to make adjustments. While you have the off you may wish to drill a small access hole in the cover to allow easier (and more accurate) adjustment of C226.

Symptom:	No RX/TX when unit is first turned on, but will return if VFO knob is spun or if power is cycled on and off a few times.
Probable Cause:	LPL problem, probably C226 has drifted out of adjustment. See cure for previous listed problem.

Symptom:	No RX/TX or distorted RX/TX on one or more bands. Distorted SSB audio sounds raspy and rough. Some bands may sound OK. Problem may be temperature related.
Probable Cause:	Bad trimmer capacitors on PLL unit, HPL VCO section.
Cure:	Replace plastic trimmer capacitors C11, C20, C29, and C37 with ceramic versions. Remove excessive plastic wax from around replacement trimmers to prevent wax contamination. We suggest using a 12pf trimmer for C29 instead of a 7pf as listed in the service

	manual. This will allow you to properly adjust the HPL lock voltage for that band.
Remarks:	While you have the PLL unit lifted, it would be a good idea to inspect the solder beneath the shield in the LPL VCO section.

Symptom:	Frequency unstable in SSB modes.
Probable Cause:	Bad trimmer capacitors in BFO.
Cure:	Replace plastic trimmer capacitors C42, 45 and C307 (all 30pf) in main unit with ceramic equivalents.

Symptom:	Drastic change in audio frequency response between USB and LSB, i.e. USB audio has too much bass while LSB audio has too much treble. USB/LSB RX frequency response may be equalized, to a degree, by adjustment if the front panel IF Shift control. TX frequency response remains poor.
Probable Cause:	Misadjustment of the BFO and/or IF shift oscillator, or a faulty crystal filter, probably FL-30 located on the main unit.
Cure:	Check adjustment of the BFO and IF shift oscillator. If these are OK, then the problem is most likely in the FL-30.
Remarks:	Some filters are better than others so some test selection may be needed to satisfactorily alleviate the problem. The better-performing (but more expensive) FL-80 filter can be substituted for the FL-30.

Symptom:	No or very low RX sensitivity.
Probable Cause:	Bad components on RF unit, probable result of RF overload or lack of necessary update. Check DC voltages at D47 on RF unit to verify problem. Correct voltages are: Cathode side- RX: 8.5, TX: 13.8. Anode side- RX: 9.0, TX: 9.5.
Cure:	Replace these components on the RF unit: D42, D44, D45, D46, D47, Q15. Check C174 and C179 for leakiness. There may be other failures. Unit is not repaired until listed voltages at D47 are correct
Remarks:	If the serial number of the unit is below 01800, the unit probably needs a factory update to the main unit to prevent future failure of these components. If the serial number is between 02000 and 02500, a diode installed in the update may have been installed incorrectly at the factory. Call technical support for details on this update.

Symptom:	Distorted RX on strong signals. BC band RX sensitivity may be low or marginal.
Probable Cause:	Q15 on the RF unit has become leaky.
Cure:	Replace faulty Q15 (2SC2878B).
Remarks:	If Q15 is leaky, there may be other problems on the RF unit. See cure for RX problems listed above.

Symptom:	Intermittent RX sensitivity. Problem seems mechanical. Banging on case or switching between RX & TX may temporarily restore

	sensitivity.
Probable Cause:	Bad relay RL13 on tuner relay unit.
Cure:	Replace RL13 (LY2-0-DC12V)

Symptom:	RX disappears when outer shield of coax is connected to the antenna. Inspection reveals 6 volt DC at the center conductor of the antenna jack.
Probable Cause:	Shorted DC-blocking capacitor C15 on the ANT SW unit.
Cure:	Replace the capacitor.
Remarks:	There are probably other problems on the RF unit if this capacitor is bad. Check the voltages at D47 on the RF unit.

Symptom:	PTT does not operate. When the SEND switch is flipped, the green RX LED stays lit and unit does not go in the transmit mode. Problem nay be intermittent.
Probable Cause:	Most common: Cracked solder at TX reg Q7 on main unit. This transistor is mounted to the aluminum heat sink and is easy to find. Less common: Poor solder at ground jumper at mic jack. The PTT ground is located here.
Cure:	Resolder poor joints.

Symptom:	No TX output in all modes. Problem is traced to no output at J8 on the RF unit.
Probable Cause:	Bad Q14 amplifier on RF unit.
Cure:	Replace faulty Q14 (2SC2053)
Remarks:	There may be other problems on the RF unit. Check the DC voltages at D47.

Symptom:	Distorted/raspy-sounding TX in SSB modes. Average power is low, even at higher mic gain levels. Turning on the speech processor seems to help a little. CW, RTTY and FM seems normal.
Probable Cause:	No bias voltage to driver or PA transistors. Measure voltages at bases of driver and PA transistors in TX SSB mode. Should be around .67 volts. 0 volts indicates trouble.
Cure:	Resolder bad Q6 (2SD880Y) on PA unit. If problem is intermittent, check for bad solder at the legs of Q6, or D2.

Symptom:	No or low output on all bands with high Icc. Inspection reveals burned D1, L1, L2, R1, and/or R2 on the ANT SW unit.
Probable Cause:	These components burned while the customer was trying to tune a high SWR load.

Cure:	Replace burned components. Update: Install a .0047uF, 500v ceramic capacitor on the back of the ANT SW board between a ground point and the foil trace junction between R1 and L1.

Symptom:	The power clicks off or flutters on and off when the TX power output is increased toward maximum. Inspection reveals that the internal power supply is unable to handle the current. Unit runs fine when the internal power supply is substituted with an external power supply.
Probable Cause:	Cracked solder in the current-sensing circuit of the power supply is shutting it down prematurely.
Cure:	Resolder joints at the .0012 ohm resistor, R26 inside the power supply.
Remarks:	This resistor appears as a metal bar soldered to the bottom PC board. Solder ONLY the edges of he bar before the holes at either end.

Symptom:	Tuner operates properly when a carrier is present, but drifts out of tune in SSB mode.
Probable Cause:	Misadjustment of R105 and R110 on tuner unit.
Cure:	Follow alignment procedure for these pots on page 6-16 in the service manual.

Symptom:	Tuner "chatters" or makes a rattling sound while speaking into the microphone in SSB mode, mostly on upper bands.
Probable Cause:	Tuner instability.
Cure:	Try aligning R105 and R110 on the tuner unit. If this doesn't help, and the unit has an older serial number, the tuner unit may need an update. Call our technical support department for information.

Symptom:	Tuner does not tune on any band. Inspection reveals that only one motor is turning.
Probable Cause:	Motor gear assembly is jammed at one end of its tuning range. This failure is usually caused by the customer attempting to tune an excessively high-SWR load.
Cure:	Disconnect J6 on tuner unit and momentarily apply a DC voltage (around 15 volts) to the stuck motor to un-jam it. Reverse the polarity of the voltage to the motor of it doesn't unstick the first time. Reconnect J6 and test the tuner. It should now work fine. If it does not, the motor driver (IC2) has probably failed.

Symptom:	Intermittent display. S-meter may peg and RX/TX may disappear when the unit is in the failure mode.
Probable Cause:	Cracked solder beneath the DP-6A DC-DC converter IC (IC1) on the display unit.
Cure:	Carefully remove the DP-6A converter IC from the display unit and resolder the pins of the IC to its circuit board. Then reinstall the DP6A back on the display unit.

Symptom:	VFO tuning is erratic: Sometimes skips frequencies in a certain area of VFO knob travel. 10 Hz display digit "flutters" instead of changing incrementally when the VFO knob is turned slowly.
Probable Cause:	Bad rotary encoder.
Cure:	Substitute rotary encoder with a known good one. It is recommended that the rotary encoder be replaced as a complete assembly if it is bad.
Remarks:	If the frequency tunes in only one direction, i.e. either up or down, there may be a problem on the logic unit.

Symptom:	Loud, high pitched squeal emanates from inside radio. May be intermittent.
Probable Cause:	DC-DC converter transformer has a loose core.
Cure:	Replace DP-6A on the display unit.

Symptom:	TX monitor gain seems low, even at maximum volume settings. Radio has good mic gain, and the transmitter works OK.
Probable Cause:	Low monitor output to AF amp in early production run.
Cure:	Install an update to increase output from the monitor circuit: On the main unit, reduce the value of R85 from 10k to 4.7k.

Symptom:	A mechanical whine emanates from inside radio in TX only at certain power levels. Transmitter works OK.
Probable Cause:	Loose core in DC-DC converter transformer inside power supply.
Cure:	Replace T2 on reg. unit inside power supply.

Symptom:	CI-V interface does not work. Unit will not communicate with computer.
Probable Cause:	Bad Q5 and Q6 on logic unit.
Cure:	Replace Q5 and Q6 (both 2SC2458-GR), then reset the CPU by holding down the CLEAR button and powering up the radio.

FAQ Index Page | Amateur Radios

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